

CLAIMS

That which is claimed is:

1. A vascular embolization system for treating a defect
5 in a blood vessel comprising:

a catheter having a proximal section, a distal section
and an outer wall defining a lumen therethrough;

a push rod slidably disposed within the lumen of said
catheter having a proximal end and a distal end; and,

10 an embolization device comprising an elongated helical
coil formed into a secondary helical configuration and a
cylindrical foam sleeve disposed about said coil, said
cylindrical foam sleeve having a hydrated normal expanded
diameter and a smaller constrained diameter such that when
15 unconstrained and hydrated said cylindrical foam sleeve
returns to the normal expanded diameter;

said embolization device being disposed within the
lumen at the distal section of said catheter, the distal
end of the push rod engages the embolization device such
20 that distal movement of the push rod causes the
embolization device to exit the lumen of the catheter at a
pre-selected position within the blood vessel.

2. A vascular embolization system as defined in Claim 1,
wherein said embolization device is comprised of a
radiopaque material.

5 3. A vascular embolization system as defined in Claim 1,
wherein said embolization device is comprised of a
therapeutic agent.

4. A vascular embolization system as defined in Claim 1,
10 wherein said cylindrical foam sleeve has a larger normal
expanded diameter than a diameter of the lumen of said
catheter.

5. A vascular embolization system as defined in Claim 1,
15 wherein said cylindrical foam sleeve has a smaller normal
expanded diameter than an outer diameter of said catheter.

6. A vascular embolization system as defined in Claim 5,
wherein said cylindrical foam sleeve is a moldable foam
20 material that is bonded to the coil.

7. A vascular embolization system as defined in Claim 6,
wherein said coil comprises a lumen and said cylindrical

foam sleeve is impregnated in said coil and extends into the lumen of said coil.

8. A vascular embolization system as defined in Claim 1,
5 wherein said cylindrical foam sleeve is a hydrogel.

9. A vascular embolization system as defined in Claim 1,
wherein said embolization device includes a reinforcing
material.

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10. A vascular embolization system as defined in Claim 9,
wherein said reinforcing material is at least one fiber.

11. A vascular embolization system for treating a defect
15 in a blood vessel comprising:

a catheter having a proximal section, a distal section
and an outer wall defining a lumen therethrough;

a push rod slidably disposed within the lumen of said
catheter having a proximal end and a distal end; and,

20 an embolization device comprising an elongated coil
and a cylindrical foam sleeve disposed about said coil,
said cylindrical foam sleeve having a hydrated normal
expanded diameter and a smaller constrained diameter such
that when unconstrained and hydrated said cylindrical foam

sleeve returns to the normal expanded diameter and wherein said cylindrical foam sleeve has a smaller normal expanded diameter than an outer diameter of said catheter;

said embolization device being disposed within the
5 lumen at the distal section of said catheter, the distal end of the push rod engages the embolization device such that distal movement of the push rod causes the embolization device to exit the lumen of the catheter at a pre-selected position within the blood vessel.

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12. A vascular embolization system as defined in Claim 11, wherein said embolization device takes a convoluted shape.

13. A vascular embolization system as defined in Claim 11,
15 wherein said embolization device is comprised of a radiopaque material.

14. A vascular embolization system as defined in Claim 11,
wherein said embolization device is comprised of a
20 therapeutic agent.